Deakin eSolutions – Information Technology Services Division

ICT Volume 2: Audio Visual Standards – Associated Resources

ICT 2.0.1 AV Standards Addenda and Updates

Audio Visual and Networks Unit

Document Version 1.1.2

Abstract

This purpose of this document is to clearly define a standard set of functional audio visual room configurations for meeting rooms and teaching spaces.

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Document Control

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Document History

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1.0.0	Neil Clarke	First release	25/05/2012
1.0.x	Neil Clarke	Incremental updates 2012	07/12/2012
1.1.0	Neil Clarke	Reset for 2013 Standards (updates absorbed)	09/02/2013
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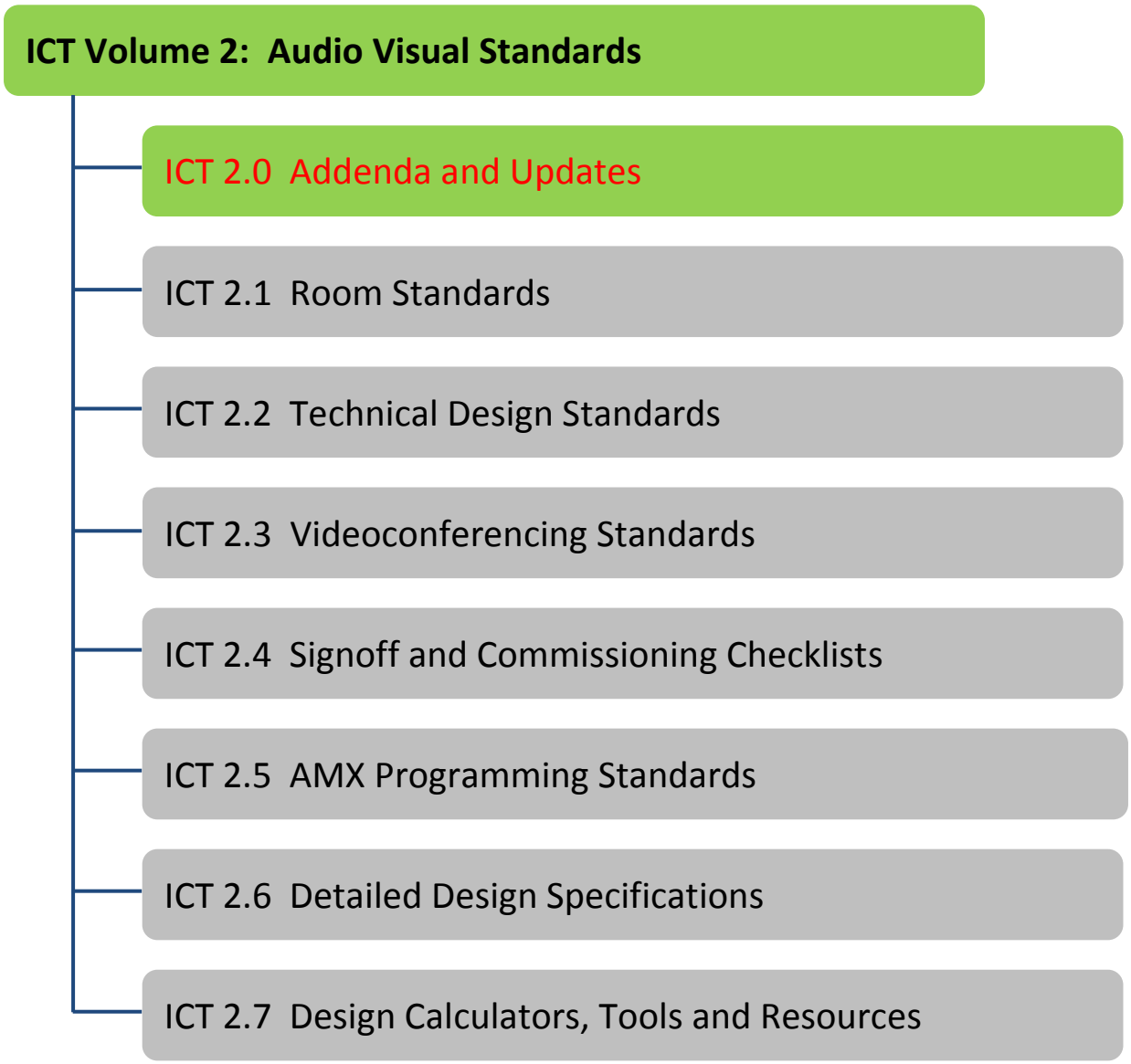
ICT Volume 2: Audio Visual Standards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ICT 2.2 Technical Design Standards
ICT 2.3 Videoconferencing Standards
ICT 2.4 Signoff and Commissioning Checklists
ICT 2.5 AMX Programming Standards
ICT 2.6 Detailed Design Specifications
ICT 2.7 Design Calculators, Tools and Resources

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Standards Brief & Policy

This document notifies addenda and incremental updates, between releases, of other documents in **ICT Volume 2 Audio Visual Standards**.

As such, information in this document ***2.0.1 Addenda and Updates*** always takes precedence over information in other documents in the volume.

This document ***2.0.1 Addenda and Updates*** must always be read in conjunction with all other documents in the volume.

Section numbers in this document refer to corresponding section numbers in the document being referenced, in the following form:

referenced document number : section number within referenced document

For conciseness, clarity and brevity, each change is notified below ***only once*** – listed against the primary or most relevant section of the Standard document. Each change is to be extended to all other places relevant in the Standards. For example, all updated model numbers are listed concisely in the one Standard Equipment List table.

Standards Document Access

All Deakin University and contracted personnel are provided access to this document.

Designers, installers and contractors must ensure they have the most current version of all standards prior to engaging in any work.

The most recent version of the Standards can be found on the internet at:
http://www.deakin.edu.au/ict/standards/active.php

and the most recent version of all associated Resources are available at:
http://www.deakin.edu.au/ict/standards/resources.php

Document Currency

These Addenda and Updates apply immediately they are published at the above url, and immediately supersede earlier versions of the Addenda and Updates.

The Addenda and Updates always supersede the published versions of the referenced documents. The relevant Addenda and Updates are amended (reset) when a new release of a referenced document is published.

2.1 Room Standards (v3.5 2013)

2.1: 3 Audio visual configuration packages

New sub-types for AV05 (Small Classroom):

- AV05-M: Digital DVX WUXGA implementation of AV05-A suitable for Macs
- AV05-E: Based on AV05-M plus local voice reinforcement , single screen Echo capture, and touch-panel control

Changed default sub-type for AV05 (Small Classroom):

- AV05-M (Digital)

Updated note:
(*) Hearing augmentation required wherever *local voice reinforcement* fitted, as required by BCA/DDA

2.1: 4.1.1 Digital signage display – AV01-S

Due to funding limitations, Digital Signage is not currently available as a full production service. Please contact the **DeS AV and Networks Unit Leader** for further information.

2.2 Technical Design Standards (v3.5 2013)

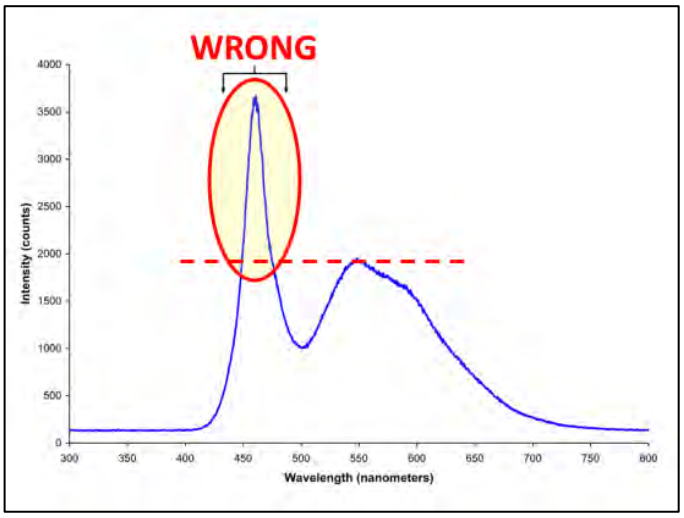
2.2: 7.4 LCD panel/s

LED backlit LCD displays are not currently part of the Standard (except for AV01 and AV02, and as preview monitors in conjunction with digital system deployments – refer next section 2.2: 7.23.1 below) but are likely to be evaluated during the life of the current Standard for wider inclusion in the next release.

Evaluation criteria will include the following important considerations:

- LED backlit LCD displays ***must*** have an effective colour temperature adjustment so that any harsh (blue accentuating) white-balance can be completely adjusted out.
    - Colour temperature ***must*** be able to be adjusted to below 4000 K.
- LED backlit LCD displays ***must not*** have a blue peak in their 'white' spectrum. Put another way, once the colour temperature has been adjusted to eliminate Blue accentuation, the resulting 'white' spectrum must not have a Green deficit.

  For example the graph below (which is typical for poorer quality 'white' LEDs) illustrates an unacceptable spectrum.



*This type of LED spectrum would **not** be accepted.*

2.2: 7.15 Cameras

Tracking cameras are currently being evaluated for use at the rear camera (camera 2) in teaching spaces (AV06, AV07, AV08) for videoconference and iLecture dual capture applications. Please contact the **DeS AV and Networks Unit Leader** for further information as regards appropriate Vaddio components to use.

2.2: 7.23 Video switching and transmission

2.2: 7.23.1 Digital

Deakin has standardized on the AMX DGX and DVX digital switchers and associated DXLink and EXB transceivers. As a result, as set out in *Appendix B* of *ICT Volume 2.2*, Deakin has standardized on the following subset of models:

- **DVX-2155HD-SP**
- **DVX-3155HD-SP**
- **DGX-16** chasses and HDbaseT and HDMI line cards
- **DGX-32-A** chasses and HDbaseT and HDMI line cards
- **DGX-64** chasses and HDbaseT and HDMI line cards
- **DXLink** HDbaseT transceivers
- **EXB** control transceivers

but ***not*** :

- other DVX models,
- nor DGX-8 (use DGX-16 instead),
- nor other DGX (e.g. DVI) line cards

HDMI cable may be used, subject to the following specifications, otherwise HDbaseT shall be used:

- maximum HDMI cable length **20 m** end-to-end **AND**
- HDMI cable must meet or exceed HDMI "**High Speed**" (Category 2) Standard i.e. certified to 340 MHz and 10.2 Gbit/s end-to-end

Deakin's HDbaseT wiring requirements:

- minimum **Cat6A** or higher
- preferred **Belden** or **Krone**
- **CAT6 WILL NOT BE ACCEPTED**
- **CAT5e OR LOWER WILL NOT BE ACCEPTED**
- cables and fly-leads shall ***not*** be coiled nor tightly bundled nor crushed by any means
- cable ties are ***never*** to be used
- cables may be loosely bundled using Velcro along with other HDbaseT or Ethernet cables only
- cables are ***not*** to be bundled with power or any other cable types
- cables and fly-leads shall be **Green** (unshielded) or **White** (shielded)
- cables and fly-leads shall ***not*** be Blue or Black (reserved for Ethernet and VoIP phones)

- **NO** field-terminated plugs
    - all plugs and fly-leads must be factory pre-terminated, moulded type
- instead field-terminated fixture cabling into punch-down blocks in wall-plates and/or patch-panel within AV rack are allowed
- HDbaseT Standard requires maximum total end-to-end length of **100 m** including patch-leads
  i.e.: **X + Y + Z < 100 m** and
  Z < 100 m – X – Y
  as set out in diagram below
- a maximum of **two** patch-leads (two joins), as specified by HDbaseT Standard and Valens, i.e. one (max length, Y, **5 m**) from wall-plate to remote DXLink device, plus one (max length, X, **5 m**) from head-end switch/device to wall-plate/patch-panel at/in AV rack:

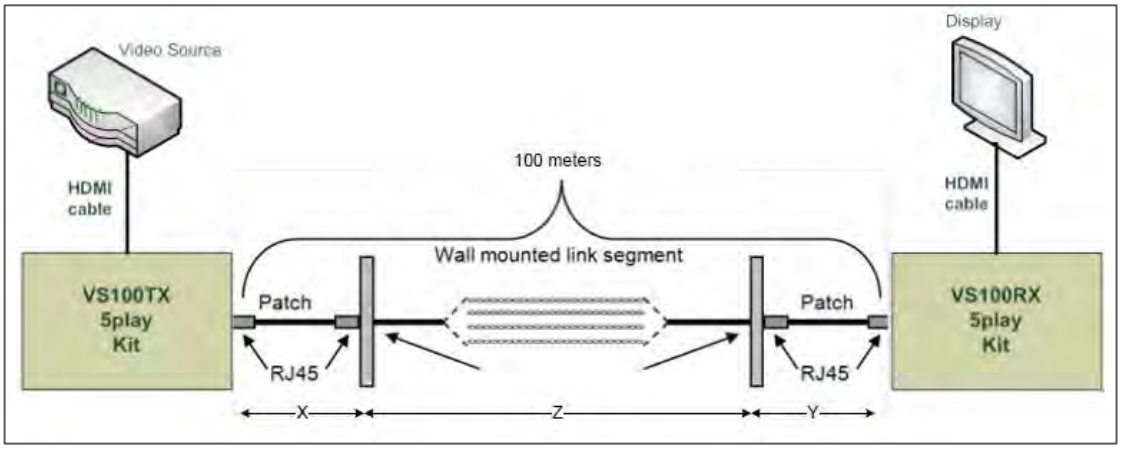


diagram courtesy Valens

- no double-patching:
  double-jumpering (e.g. via an intermediate Krone frame within a Comms room) is ***not*** permitted; instead the cable must be wired direct from wall-plate to patch-panel in AV rack, as shown above
- no IDFs:
  HDbaseT must ***not*** be passive-patched at a Comms room distribution frame for interconnection between remote devices
  (apart from the risk of the doubled end-to-end distance exceeding 100 m limit there-and-back, the additional intermediate patching violates the HDbaseT Standard as set out above)
- use of shielded:
  AMX recommends **shielded**, i.e. FUTP cable, particularly in challenging power interference environments
- where shielded is employed, shield must be properly grounded:
    - Installer must submit proposed grounding strategy for approval by **DeS AV and Networks Unit Leader** prior to commencement of works, and
    - Installer must indicate whether proposed grounding strategy is intended to provide a low frequency (safety) ground and/or high frequency (signal interference) protection.

- where shielded is employed, industry recommendations must be followed:
    - Belden: "*When installing shielded systems it is important to maintain shielding integrity at all connection points and to ensure a low resistance path to ground as specified in the TIA-607-B Bonding and Grounding Standard*" and
    - Valens: "*Grounding of the foil in one location from the patch panel in the telecommunications closet to the TGB is required*" – it is noted that this advice is inconsistent with Valens direct-wiring architecture described above: hence this requirement must be interpreted to mean single-point grounding at the patch-panel in the AV rack or via the switch itself.
- use of unshielded:
  given the very real practical and theoretical downsides of shielded, consideration should be given to the use of UTP (Cat6A or greater) in the following circumstances:
    - unchallenging power environments, i.e. where all AV devices in the room (including projectors and user power in table-boxes etc.) are powered from the same circuit; and share a common earthing system; where there is no significant power interference/noise problems or sources nearby; and the circuit is fed from a shared wired-in UPS providing a clean power source to all involved equipment
- however choice of shielded *vs* unshielded ultimately always remains with the integrator, as they have responsibility for ensuring a reliable functioning system outcome
- every DVX, DGX, DXLink and EXB must be allocated an IP address
    - the IP address shall be a fixed private address issued by Deakin's DHCP service
    - all DXLink and downstream attached devices (e.g. projector) must be allocated IP addresses in the same subnet/vlan as the upstream hosting DVX/DGX/DXLink
      (the Ethernet switch inbuilt within these products is a simple single-vlan switch and hence cannot support multiple downstream vlans)

Please note the following idiosyncrasies applying to specific AMX models:

- the HDbaseT *outputs* on the DVX-3155HD do not supply power (an AMX PDXL-2 power injector at the DVX end or an AMX DXLink plug-pack AC power supply at the DXLink receiver is required)

  [the 3155 *inputs* deliver power as do the 2155 *inputs and outputs*]
- the DGX DVI input card is DVI-D only (not multi-format)
  for any form of analog video input into DGX an external DXLink adaptor must be provisioned

  [DVX models have multi-format *inputs* via DVI-I]

  [none of DGX nor DVX range have any *analog vision outputs*]
- the DGX does not have:
    - inbuilt audio DSP
    - inbuilt audio power amplifier
    - still-image logo repository
    - web control interface

Please note also that:

- the **DGX**, despite appearances, ***does*** have an inbuilt NetLinx controller
  (legacy control ports are provisioned via an external **EXB** breakout box via Ethernet, not directly on the **DGX** backpanel; an external NetLinx is *not* required)

Vision outputs are digital HDMI/DVI-D only, which is not compatible with DisplayPort.

- use **HP LA2405x** 24" WUXGA preview monitor (not Lenovo)

EXB control breakout boxes should be co-located with the equipment controlled

- in particular: legacy control (RS-232 etc. low voltage control) of lighting controllers must be via EXB co-located with lighting controller; legacy controls must not be wired back to AV rack or AMX NetLinx
- RS-232 control must never exceed its maximum 15 m cable length

Please consult the **DeS AV and Networks Unit Leader** for further details for specific applications before design commencement.

2.2: 7.23.2 Analog

Analog TP 'extenders' are being phased out as set out in the Standard. Please consult the **DeS AV and Networks Unit Leader** for remaining allowable model numbers and applications.

2.2: 9.9 Acoustics & noise

Typographical error: replace "NR25" with "NR35", as correctly specified in Volume 2.3.

2.2: 10.12 Lighting

Legacy control (RS-232, RS-485, contact-closure, relay, I/O, or other low-voltage controls, etc.) of lighting controllers must be via an AMX EXB breakout box, which converts to Ethernet. The EXB must be co-located with the lighting controller. The legacy controls ***must not*** be wired back to the AV rack or the master NetLinx controller.

The caption regarding *C-bus* is only relevant for non-standard situations – Deakin standard lighting controller is Dynalight.

2.2: 10.13 Floor boxes

Floor boxes and table boxes are currently under review. Please contact the **DeS AV and Networks Unit Leader** for further information.

2.2: 11.5 Audio visual cabling

2.2: 11.5.1.10 HDbaseT

Refer mandatory requirements and details at section 2.2: 7.23.1 above.

2.2: 15.2 Appendix B: Standard equipment list

Appendix B is replaced as below, due to changed standard models highlighted:

- Epson projector EB-G6550WU replaces Epson EB-G5750WU (WUXGA single lamp)
- Mitsubishi projector WD8200U (WXGA high brightness) no longer available – use standard W**U**XGA dual-lamp projector (Epson EB-Z8450WU) instead
- Mitsubishi projector WD3300U (WXGA single lamp) soon no longer available – use standard W**U**XGA single-lamp projector (Epson EB-G6550WU) instead
- Lumens document camera DC265 replaces Lumens PS550
- AMX Tx-MULTI-DxLink replaces AMX Tx-HDMI-DxLink
- Sacom multi-channel rackmount wireless microphone system added to the Standards
- RDL twisted-pair microphone transceivers have been added to the Standards
- RDL inline microphone compressor is for trialling
- ClearOne Converge SR1212A replaces ClearOne Converge SR1212 in all applications
- ClearOne Converge Pro 880-TA replaces ClearOne Converge Pro 880 in all applications
- AMX TPI-PRO-DVI-4 replaces AMX TPI-PRO-2
- Monitor mount for all presentation desks: Colebrook-Bosson-Saunders Flo VESA mount
  http://www.colebrookbossonsaunders.com/en-au/products/monitor-arm-stand/flo-monitor-arm/

plus introduction of Class-D power amplifiers to the Standards:

- ClearOne Converge Pro 880-TA and SR1212-A
- AMX DVX-2155HD-SP, AMX DVX-3155HD-SP
- Extron Class-D

and for use in videoconference applications:

- Cisco videoconference system SX20 replaces Cisco C20
- Vaddio tracking camera systems are being trialled
- EAW LS432i directional speaker for use with ceiling mic solution
  (refer section 2.3:6.8.2 below for application details)

For models currently under re-evaluation please contact the **ITSD AV and Networks Unit Leader** for details.

Equipment	Make / Model
Interactive devices	
Interactive Whiteboard	SmartBoard SB685 series with Mitsubishi WD380U-EST ultra short throw projector and BR-380WM wall mount bracket – refer DeS AVN for alternative
Interactive Tablet	Smart SP524
Interactive Panel	Touch LCD panels – under evaluation – contact DeS AVN for details
Electronic Whiteboard*	Panasonic model PAN UB-5815* * *Non-standard:* generally not provisioned
Projectors	
Standard (WXGA)	Mitsubishi WD3300U or use Epson EB-G6550WU (W**U**XGA) as substitute
High Brightness (WXGA)	Mitsubishi WD8200U or use Epson EB-Z8450WU (W**U**XGA) as substitute
Ultra Short Throw (WXGA)	Mitsubishi WD380U-EST with BR-380WM wall mount bracket – refer DeS AVN for alternative
High Resolution (WUXGA)	Epson EB-G6550WU
High Brightness (WUXGA)	Epson EB-Z8450WU (3LCD) ~~*or*~~ ~~Mitsubishi UD8350U (DLP) *depending on application*~~
Projection Screens*	Screen Technics, 16x10, for both motorised* and manual* * *Non-standard:* where possible project directly onto zero-gloss matt white wall, as required by the Standards
Displays	
LCD Panel	Mitsubishi LDTxxxx series Mitsubishi MDTxxxx series – refer DeS AVN for alternatives
LCD Panel 107 cm (42”)	Mitsubishi LDT422V or refer DeS AVN for alternative
LCD Panel 117 cm (42”)	Mitsubishi LDT462V or refer DeS AVN for alternative
LCD Panel 140 cm (55”)	Mitsubishi LDT551V – refer DeS AVN for alternative
LCD Panel 165 cm (65”)	Mitsubishi MDT652V – refer DeS AVN for alternative
LCD Panel 61 cm (24”) *for AV02*	HP LA2405x
Digital Set Top Box	
for AV01-S (Digital Signage)	Cisco DMP – refer DeS AVN for model numbers
for AV01-T (IP-TV)	Amino Aminet H140
Document Camera	
for AV06-AV08 spaces	Lumens DC265, full-HD Desktop Visual Presenter
for AV03-AV05 spaces	Lumens DC265, full-HD Desktop Visual Presenter
for use with SmartBoards	Smart SDC-330
Video	
DVD Player	Panasonic only * * *Non-standard:* apart from AV01-T, PC should be utilised for DVD playback, as required by the Standards

Equipment	Make / Model
Videoconferencing	
	refer *ICT Volume 2.3 Videoconferencing Standards* – Appendix B
Lecture Recording	
Recording Device	EchoSystem SafeCapture HD (dual capture appliance)
Microphones	
Gooseneck	Shure MX-418
Lapel	Shure ULX Series ULXP1483
Handheld	Shure ULX Series ULXP24/58
Wireless multi-channel	Sacom
Table Mounted	Audio Technica U851R or in-panel ES947 boundary cardioid microphones
for videoconferencing	refer *ICT Volume 2.3 Videoconferencing Standards* – Appendix B
Audio	
Audio DSP, basic	ClearOne Converge SR1212**A** DSP with DARE
Audio DSP, Video Conference	ClearOne Converge Pro 880-T**A** DSP with echo cancellation
Speakers, Ceiling Mounted	JBL CT series, Bose Freespace series, or EAW CIS series
Speakers, Program Audio	JBL, EAW – refer DeS AVN for model numbers
Speaker, Far-end (AV04)	EAW LS432i directional speaker for use with ceiling mic solution (refer section 2.3:6.8.2 below for application details)
Active Speakers, Program Audio (AV05)	Apart SDQ5PIR (black or white finishes as appropriate)
Power Amplifier	ClearOne Converge SR1212**A** DSP with DARE ClearOne Converge Pro 880-T**A** DSP with DARE AMX DVX-2155HD-SP, AMX DVX-3155HD-SP Extron Class-D – refer DeS AVN for model numbers Australian Monitor AV2.2P (100 W/channel 4 ohm 1RU) convection cooled – being retired Australian Monitor AV2.4P (200 W/channel 4 ohm 2RU) convection cooled – being retired
Hearing Augmentation, IR	Williams – under evaluation – refer DeS AVN for model numbers
Hearing Augmentation, Induction Loop	Ampetronic iLD300
Video Switching & Scaling	
Laptop Switcher, VGA+audio	Kramer VP-211K
Laptop Switcher, VGA+audio+USB, for use with SmartBoards	PTN PUTRON - WVG2A USB
VGA Switching	AMX AutoPatch – refer DeS AVN for model numbers
VGA Scalers	Extron Scaler – refer DeS AVN for model numbers
Twisted Pair Switching	AMX DVX-2155HD-SP, AMX DVX-3155HD-SP, AMX DGX-16, DGX-32A, DGX-64 only

Equipment	Make / Model
Twisted Pair Transceivers	
Twisted Pair AV Transmitters	AMX DXLink family
Twisted Pair AV Receivers	AMX DXLink family
Twisted Pair mic/audio Transmitters	RDL contact DeS AVN for details
Twisted Pair mic/audio Receivers	RDL contact DeS AVN for details
Ethernet control transceivers	AMX – ICSLan EXB family: EXB-COM2 (2 serial), EXB-IRS4 (4 IR), EXB-I/O8 (8 I/O), EXB-MP1 (1 serial, 1 IR, 2 I/O), EXB-REL8 (8 relay)
Cable	
Twisted Pair Cable for video including HDbaseT	Cat-6A only
Twisted Pair Cable for audio, control, Ethernet	*as per Deakin Network Standards refer ICT Volume 6*
HDMI	HDMI "High Speed" (Category 2) standard (i.e. certified to 340 MHz and 10.2 Gbit/s)
Room Control/Automation	
Large Room (AV06-AV08)	AMX NI-3100/4100, DGX/DVX (models as above)
Touchscreen (AV06-AV08)	WUXGA ELO touchscreen with AMX TPI-PRO-DVI-4
AV05 teaching space	AMX Novara CP-3008; or DVX with AXLINK keypad
Medium Room (AV04)	Cisco Touch-8, in some cases in conjunction with autonomous DVX controller – contact DeS AVN for details
Medium Room (AV03)	generally not required; otherwise as per AV05 above
Small Room (AV01-AV02)	n/a
Wireless Touchscreen	***do not use*** – use components listed above instead (iPad under evaluation)
PIR Motion Sensor	contact DeS AVN for details
Lighting Control	
All Controlled Spaces	DALI/Dynalight
Power	
UPS[1]	APC SUA3000XLI* APC Smart-UPS RT 3000VA 230V complete with AP9631 SMARTSLOT SNMP + ENVIRO MONITORING
Power Line Filter[1], *for single items of equipment powered directly from a single GPO only*[2]	Belkin F9H100vauCW SurgeCube
Power Distribution Unit, *all non-rack-mount applications*[3]	*7-way:* Thor Smart Filter D1/45B *2-way:* Thor Smart Filter C2 – under evaluation – contact DeS AVN for details (with inbuilt Power Line Filter)
Power Distribution Unit, *for all rack-mount applications*[1]*:*	

[1] in existing buildings where wired-in dedicated AV UPS circuit not available;
as per Deakin Standards (sect. 9.1) all new building installations require dedicated AV circuit/s with wired-in UPS.

[2] as per Deakin Standards (sect. 9.1, 7.26): Double-adaptors and power-boards are NEVER to be used.

[3] as per Deakin Standards (sect. 9.1, 7.26): Double-adaptors and generic power-boards are NEVER to be used.

Equipment	Make / Model
PDU, wherever UPS power not available	Thor RF11 (with inbuilt Power Line Filter)
PDU, for use in conjunction with UPS or PLF conditioned power	APC AP7920 (with remote monitoring and control of each outlet independently)
Power Outlet, presenter's desk[1]	Elsafe POCO 50 4x GPO with 0.8 m lead and 2 m 10 A starter cable with thermal overload
Cable management	
Table box, *no 240VAC*	Extron CableCubby 300C, 300S or 600 (brushed aluminium or black finishes)
Table box, *inc. 1x 240VAC GPO*	Extron CableCubby 600 or 800 (brushed aluminium or black finishes)
Table box, *multi 240VAC GPO plus LV/AV/data*	under evaluation – contact DeS AVN for details
Table box, *240VAC only (no LV/AV/data)*	under evaluation – contact DeS AVN for details
Floor box	Elsafe, CMS – refer DeS AVN for model numbers
Cross-floor cable protection	Extron AVtrac (wherever floor penetrations are not possible)
Brackets, Mounts and Racks	
Monitor mount, all presentation desks	Colebrook-Bosson-Saunders Flo VESA mount http://www.colebrookbossonsaunders.com/en-au/products/monitor-arm-stand/flo-monitor-arm/
LCD Wall Mount Bracket	TeleHook
AV Rack	Hallam RC39/27/18/12/8060 39RU, 27RU, 18RU and 12RU racks configuration: Frame, Metal Front & Rear Doors, Side Panels & Top Panel with VPD39/27/18/12/2600-001A Vertical Power Distribution Post 10 A sockets (only for use in conjunction with UPS or PLF conditioned power, and where monitoring or control of individual outlets is not required – refer 'Power' section above for alternative solutions)
Projector Mounting	Ultra-lift Spider 1200
Motorised Lifters	Ultralift
Security	
Projector Security	Qantum 360 PIR
PC peripherals	
Keyboard/Mouse	Logitech MK710

2.3 Videoconferencing Standards (v3.1 2013)

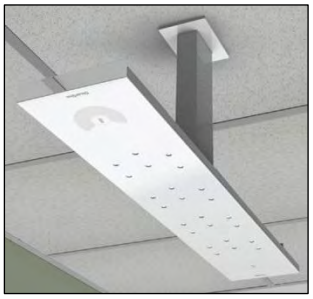
2.3: 6.2 Cisco/Tandberg C20*plus*

The Cisco model SX20 replaces the C20. As was the case for the C20, the 12X camera must be purchased, not the 4X or other degraded camera or system options. As per Deakin Standards, the MS option must ***not*** be purchased.

2.3: 6.8.2 Reconfigurable spaces

Ceiling microphone arrays suitable for reconfigurable spaces are currently being trialled. The only recommended models at this stage are:

- **Audix M40** inverted gooseneck (white) range. Microphone must be directional (cardioid). The *Ceiling Microphone Configurator* design tool has now been released for trialling as *ICT Resource 2.7.3.3*. Please contact the **DeS AV and Networks Unit Leader** for further information.



- **ClearOne Beamforming Microphone Array**. Please contact the **DeS AV and Networks Unit Leader** for further information.

Directional FoH speaker for use with ceiling microphone array:
The **EAW LS432i** has been successfully trialled for use with ceiling microphone arrays.

Application: A *single* EAW LS432i shall be mounted *between* the FoH dispays/images and *below* the camera. Audio routing: Far-end audio is fed (mono) to this FoH centre speaker. A pair of standard FoH speakers shall also be installed for local content audio (stereo). Local voice reinforcement is *not* used with ceiling mic solution.

Choice of colours:

- **EAW LS432i-White** shall be used in conjunction with *projectors* to blend in with the white presentation surface
- **EAW LS432i-Black** shall be used in conjunction with *LCD panels* to blend in with the dark wall colour required behind LCD displays.

2.3: 6.9 Cameras

Note: System integral Cisco PTZ cameras shall generally be connected (optionally via an approved HDbaseT extender as set out in the Standard as required) directly to codec camera inputs and not indirectly via a vision switch except where authorized by the **DeS AV and Networks Unit Leader**.

Tracking cameras are currently being evaluated for use as the rear camera (camera 2) in teaching spaces (AV06, AV07, AV08) for videoconference and iLecture dual capture applications. Please contact the **DeS AV and Networks Unit Leader** for further information for further information as regards appropriate Vaddio components to use.

2.3: 9.1.3 Session types

Multiway (PABX-style multi-party user-initiated dialout) supported by the central MCU is currently not deployed at Deakin. Please contact the **DeS AV and Networks Unit Leader** for further information.

2.3: 11.1.3 LED lighting

RGB LED lighting has not yet been evaluated for suitability in conjunction with videoconferencing technology and are not yet approved for this application. It is possible that the RGB centre wavelengths of the LEDs do not align with those of the videoconference camera image sensor, potentially leading to excessive colour imbalance.

Phosphor-LED lighting: The Standard currently provides best available preliminary information only. Some specifications listed are subject to further study as noted in the Standard.

All LED lighting should be tested *in situ* via a Cisco PHD videoconference camera prior to installation. Please contact the **DeS AV and Networks Unit Leader** for further information.

2.3: 11.7 Table layouts

Diagrams at section 11.7 do not depict all of the currently acceptable configurations. Please refer to *ICT Resource 2.7.3 Microphone Placement* for a wider range of table layouts.

2.3: 14.2 Appendix B: Standard equipment list

Changed/additional standard models are listed below:

- Cisco SX20 replaces Cisco C20
- Audix M40 inverted gooseneck (white) range for flexible furniture meeting/seminar rooms
- ClearOne Beamforming Microphone Array for flexible furniture meeting/seminar rooms
- EAW LS432i directional speaker for use with ceiling mic solution
  (refer section 2.3:6.8.2 above for application details)

Equipment	Make / Model
Codecs	
SX20	Cisco SX20 with NPP+DD+PR+1080p+12X+3yr maint
Audio	
Ceiling microphone array (AV04 with flexible furniture)	Audix M40 inverted gooseneck (white) range ClearOne Beamforming Microphone Array
Speaker, Far-end (AV04)	EAW LS432i directional speaker for use with ceiling mic solution (refer section 2.3:6.8.2 above for application details): • EAW LS432i-White for use with projectors • EAW LS432i-Black for use with LCD panels

2.4 Signoff and Commissioning Checklists (v1.5 2013)

<NO UPDATES>

2.5 AMX Programming Standards (v1.0 2013)

<NO UPDATES>

2.6 Detailed Design Specifications (v1.0 2013)

<NO UPDATES>

2.7 Design Calculators, Tools and Resources (v1.0 2012)

<NO UPDATES>